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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/608,486

06/27/2003

Charles B. Greenberg

1240D3

7837

7590

06/16/2005

PPG Industries, Inc.
One PPG Place
Pittsburgh, PA 15272

EXAMINER

MCNEIL, JENNIFER C

ART UNIT

PAPER NUMBER

1775

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/608,486

Applicant(s)

GREENBERG ET AL.

Examiner

Jennifer C. McNeil

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26, 41-65, 67, 68 and 70-81 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13, 41-65, 67, 68 and 70-81 is/are allowed.
- 6) ☒ Claim(s) 1-12, 14-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 3 refers to the titanium dioxide comprising anatase, rutile, or brookite.

Should anatase be removed from the grouping as it is a requirement for claim 1 as amended?

Claim Rejections - 35 USC § 102/103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10, and 21 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Takahama et al (US 5,811,192). Takahama teaches a titanium dioxide film having photocatalytic activity. The film may be deposited onto glass or metal. The film may have a thickness of 1000-20000 angstroms (100-2000 nm).

Takahama does not specifically disclose that the coating may be a combination of amorphous

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and anatase (crystalline) phases. However, Takahama does teach that the titanium dioxide film has a "higher crystallinity of anatase" which results in a higher photocatalytic activity when compared to a conventionally formed titanium dioxide film such as that formed by sol-gel. One of ordinary skill in the art would recognize that a titanium dioxide film formed via sol-gel results in an amorphous coating, which is confirmed by the instant specification on page 2, lines 18-23). Therefore, the teaching of Takahama that the film has a "higher crystallinity of anatase" would impart a coating with a higher amount of crystallinity than that of an amorphous film, and is a mixture of the two. Alternatively, it would have been obvious to one of ordinary skill in the art that the film formed by Takahama is a combination of amorphous and crystalline (anatase) phases from the comparison between the coating deposited via sol-gel and the coating "higher" crystallinity. The mixture of the two phases as claimed would allow for a very small amount of crystalline form or alternatively a very small amount of amorphous phase.

Regarding the method limitations for deposition of the film, "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.", (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art

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product (*In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113).

Regarding claim 7, as the film of Takahama comprises the same composition of the claims, it is fully expected to possess the same characteristics. Regarding claims 8 and 9, the means by which the reaction rate is determined is not considered to structurally limit the article itself.

Claims 1-6, 10-12, 14-18, and 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCurdy (US 6,238,738) in view of Takahama et al (US 5,811,192). McCurdy teaches a titanium oxide coating deposited via CVD on float glass. As shown in Table 1 and the examples, the titanium oxide layer may have a thickness of less than 100 Angstroms, and up to 1300, with specific examples of 490 A, 800 A, 684 A, and 836 A. The layer may be deposited directly onto the substrate or may also have an intermediate layer therebetween. The intermediate layer may comprise silica. An example of the thickness of the silica layer is 339 A. McCurdy does not specifically teach a self-cleaning titanium oxide. Takahama teaches a self-cleaning titanium dioxide layer as discussed above, but does not include additional layers. Self-cleaning coatings are desirable to reduce the need for manual or mechanical cleaning of the glass. One of ordinary skill in the art at the time of the invention would have found it obvious to provide the titanium dioxide layer of McCurdy in the form taught by Takahama for its self-cleaning properties which would decrease labor costs for cleaning of the glass.

Regarding claim 22, the coating may be deposited onto a glass float ribbon.

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Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCurdy (US 6,238,738) in view of Takahama et al (US 5,811,192). McCurdy teaches a silica layer between the titanium oxide layer and the substrate, but does not give a range of thicknesses that may be used. A thickness of 339 Angstroms is given. Absent a showing of unexpected results, one of ordinary skill in the art would have found it obvious to provide the silica layer having a thickness sufficient for the desired function, and that does not interfere with the function of the overlying layer.

Allowable Subject Matter

Claims 13, 41-65, 67, 68, and 70-81 are allowed.

Response to Arguments

Applicant's arguments with respect to claims 1-12, and 14-26 have been considered but are moot in view of the new ground(s) of rejection. Applicant's amendment to the independent claim necessitated the new grounds of rejection above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

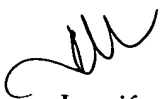
Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer C. McNeil whose telephone number is 571-272-1540. The examiner can normally be reached on 9AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jennifer McNeil
June 9, 2005